An evaluation of a refresher training intervention for HIV lay counsellors in Chongwe District, Zambia

Charles Msisuka, Ikuma Nozaki, Kazuhiro Kakimoto, Motoko Seko, Mercy M S Ulaya, Gardner Syakantu

Abstract

To address a severe shortage of human resources for health, the Zambian Ministry of Health has begun to make use of lay counsellors for HIV counselling and testing. However, their skills and knowledge rarely have been reviewed or refreshed. We conducted a two-day refresher workshop for lay counsellors to review their performance and refresh their skills and knowledge. The objective of this study was to evaluate the refresher training intervention for HIV lay counsellors in the rural district of Chongwe in Zambia. The two-day refresher-training workshop was held in November 2009. Twenty-five lay counsellors were selected by District Health Office and participated in the workshop. The workshop included: the opening, a pre-training exercise, lectures on quality assurance with regard to testing and safety precautions, lectures on counselling, filling the gap/Q&A session, and a post-training exercise. In both the pre- and post-training exercise, participants answered 25 true/false questions and tested 10 blood panel samples to demonstrate their knowledge and skill on HIV counselling and testing. The average overall knowledge test score increased from 79% to 95% ($p<0.001$). At the baseline, knowledge test scores in topic of standard precaution and post-exposure prophylaxis were relatively low (58%) but rose to 95% after the training ($p<0.001$). The per cent agreement of HIV testing by lay counsellors with reference laboratory was 99.2%. Participants' knowledge was improved during the workshop and skill at HIV testing was found to remain at a high level of accuracy. Relatively weak knowledge of standard precautions and post-exposure prophylaxis suggests that lay counsellors are at risk of nosocomial infections, particularly in the absence of refresher training interventions. We conclude that the refresher training was effective for improving the knowledge and skills of lay counsellors and provided an opportunity to monitor their performance.

Keywords: *HIV, counselling and testing, lay counsellor, task-shifting, refresher training, Zambia.*

Résumé

Afin de résoudre un problème de manque crucial de ressources humaines dans le secteur de la santé, le ministre de la Santé zambien a commencé à faire appel à des conseillers non professionnels afin de fournir des conseils et un dépistage du VIH. Cependant, les compétences et les connaissances de ces conseillés ont rarement été évaluées ou remises à niveau. Nous avons organisé un atelier de remise à niveau sur deux jours, destiné aux conseillers non professionnels afin de leur permettre d'évaluer leur performance et de remettre leurs compétences et leurs connaissances à niveau. L'objectif de cette étude était d'évaluer l'intervention de formation de remise à niveau destinée aux conseillers non professionnels dans ce district rural de Chongwe en Zambie. Cet atelier de remise à niveau et de formation de deux jours s'est tenu en novembre 2009. Vingt-cinq conseillers non professionnels ont été sélectionnés par l'Office de la santé du district et ont pris part à l'atelier. Celui-ci s'est composé des sessions suivantes: allocution d'ouverture, exercice préalable à la formation, leçons sur l'assurance de la qualité en matière d'essai et de précautions de sécurité, leçons sur le conseil, session de rattrapage/Q&R, et exercice de post-formation. Au cours de l'exercice préalable à la formation et de l'exercice de post-formation, les participants ont répondu à 25 questions vrai/faux et ont testé 10 prélèvements sanguins afin de démontrer leurs connaissances et leurs compétences en matière de conseil et de dépistage du VIH. Le résultat général moyen obtenu au test de connaissances est passé de 79% à 95% ($p<0.001$). Au départ, les résultats du test de connaissances sur les questions de précaution standard et de prophylaxie post-exposition étaient relativement faibles (58%) mais ont augmenté suite à la formation ($p<0.001$). Le pourcentage de réussite des essais de dépistage réalisés par les conseillers non professionnels, en référence aux résultats obtenus en laboratoire, était de 99.2%. Les connaissances des participants se sont améliorées au cours de l'atelier, et les compétences en matière de dépistage du VIH ont conservé un niveau de précision élevé.

Charles Msisuka is a District Medical Officer, Chongwe, Lusaka Province, Zambia.

Ikuma Nozaki is a Technical Officer, Department of International Cooperation, National Center for Global Health and Medicine, Japan. He was a Technical Advisor on Rural ART Services to Zambian Ministry of Health, dispatched as a JICA Expert. He is currently registered as Takemi Fellow in International Health, Harvard School of Public Health, USA.

Kazuhiro Kakimoto is a Professor, School of Nursing, Osaka Prefecture University. He was in Zambia as Short-time Expert for HIV Care Services.

Motoko Seko is a Technical Consultant for Japan International Cooperation Agency (JICA), Japan. She was an Advisor to the National AIDS Council, Zambia, dispatched as a JICA Expert.

Mercy M S Ulaya is a PMTCT/VCT Specialist, National AIDS Council, Zambia.

Gardner Syakantu is a Director of Clinical Care and Diagnostic Services Department, Ministry of Health, Zambia.

Correspondence to: Ikuma Nozaki (i-nozaki@it.ncgm.go.jp or *inozaki@hsph.harvard.edu)*

Une connaissance relativement faible des précautions standards et de la prophylaxie post-exposition suggère que les conseillers non professionnels pourraient courir le risque de contracter des infections nosocomiales, en particulier en l'absence d'interventions de formation de remise à niveau. Pour conclure, la formation de remise à niveau était efficace pour améliorer les connaissances et les compétences des conseillers non gouvernementaux et permettait de suivre leur performance.

Mots clés: *VIH, conseil et dépistage, conseiller non professionnel, délégation des tâches, formation de remise à niveau, Zambie.*

Introduction

With an adult prevalence rate of 14.3%, Zambia has been severely affected by the HIV endemic (Central Statistical Office, 2007). Beginning in 2006, Zambia rapidly expanded HIV counselling and testing services, which are now available nationwide. As in other African countries, however, one of the biggest obstacles to expanded services in Zambia has been a shortage of human resources for health (Brugha *et al.*, 2010; Schatz, 2008; Tjoa *et al.*, 2010).

To address this problem of human resources, the Ministry of Health introduced task-shifting among health care providers (Ministry of Health, 2006a; Morris *et al.*, 2009; Walsh, Ndubani, Simbaya, Dicker, & Brugha, 2010). Task-shifting is the process of delegating tasks from more specialised to less specialised health workers and has been proposed as one of several possible solutions to the African health sector's significant human resource shortage (Lehmann, Van Damme, Barten, & Sanders, 2009).

In the area of HIV counselling, community members have been trained as 'lay counsellors, enabling them to fill a role previously assigned to health professionals. Lay counsellors are certified after completing a 7-week national training package for psychosocial counselling. The training package includes a 2-week theoretical component followed by a 5-week supervised practical component. The training covered HIV infection, appropriate values and attitudes for counsellors, behaviour change communication, psychosocial support, pre-test and post-test counselling, and professional ethics. However, in the initial phase, performing the actual HIV test was restricted to health professionals and the lack of available medical professionals sometimes meant that clients had to wait a long time for testing after they had received pre-test counselling. This delay was thought to have caused an increase in dropouts from counselling and testing. Therefore, a national HIV testing algorithm using the finger-prick method for rapid testing was formulated to accommodate the growing needs for HIV testing (Ministry of Health, 2006b). This method allowed non-medical staff to administer HIV tests.

JICA's Integrated HIV and AIDS Care Implementation Project at the District Level (JICA, 2006) has introduced this Zambia's lay counsellor policy as a pilot. However, as time passed, it recognised that lay counsellors had few or no opportunities to refresh their knowledge and skills after the initial training and certification. Although the national training package for lay counsellors was adopted and widely utilised, a standardized refresher-training module has not been developed.

In addition, although Sanjana *et al.*, (2009) reported that lay counsellors with approved training can play a major role at health facilities to provide counselling and testing services of quality, the systematic monitoring of performance of lay counsellors was lacking. The National Quality Assurance Strategy for Counselling and Testing recommended the re-testing of 10% of specimens using dried blood spots (DBS), on-site monitoring, and proficiency testing using a panel of specimens with known reactivity(Ministry of Health, 2007), thought it has yet to be fully implemented. The strategy to monitor and evaluate the performance of lay counsellors on a regular basis was required.

To monitor and refresh the skills and knowledge level of lay counsellors, the Chongwe District Health Office (DHO) together with The National AIDS Council (NAC), Virology Laboratory in University Teaching Hospital (UTH) and the JICA project, organised a 2-day refresher workshop for lay counsellors in Chongwe. Pre- and post-training exams provided data on participants' skills and knowledge that were then used for monitoring and supervision by DHO and NAC. The objective of this study was to evaluate the effectiveness of refresher training intervention to HIV lay counsellors in the rural district, Zambia.

Methods

Study site

Chongwe district is one of the 72 districts in Zambia; its district capital is located about 50 km east of Lusaka, the capital of Zambia. The district currently has a population of approximately 200 000. The adult HIV prevalence rate in Lusaka Province was estimated to be 20.8% in 2007. Most of the 30 health facilities located in the district, including a mission hospital, provide HIV counselling and testing services. The DHO began using lay counsellors in 2003 on a pilot basis.

Study participants and procedure

The refresher workshop was held in Chongwe district in November 2009. Twenty-five participants were selected by the DHO including at least one from each of the health facilities that used lay counsellor. Health facilities were asked to send their most active lay counsellor. The workshop included an opening, a pre-training exercise, lectures on quality assurance in testing and safety precautions, lectures on counselling, a filling the gap/Q&A session, and a post-training exercise. Since there was no standardised refresher-training module in Zambia, some training materials from the National Counselling and Testing Training Curriculum

were adopted for lectures. The national trainers for psychosocial counselling from the NAC facilitated the training.

To evaluate the knowledge of participants on HIV counselling and testing, 25 true/false questions were developed based on the national training module for psychosocial counselling and had three components: counselling, HIV testing, and standard precautions and post-exposure prophylaxis. Participants answered the questions in 30 minutes in both the pre- and post-training exercise sessions. Comparisons of scores between the pre- and post-training sessions were performed using paired t-test. The accepted level of significance was $p<0.05$.

To evaluate the skill at HIV testing, full-blood samples of known panels prepared by the virology lab of UTH were used. Participants re-tested the 10 panel samples during both the pre-training exercise and post-training exercise sessions. Both screening test kits (Abbott Determine®) and confirmatory test kits (Unigold®) were made available for participants to select and perform appropriate tests, as per the Zambian HIV testing algorithm. The results of retesting were compared with those of UTH to calculate the percent agreement of HIV testing results.

To better understand broader factors that could influence the effectiveness of the lay counsellor system, participants were also asked about their motivations and the obstacles to their performance under normal circumstances.

Ethical consideration
Both the University of Zambia Research Ethics Committee and Department of Public Health and Research, Zambian Ministry of Health, reviewed the study protocol and gave ethical approval.

Results
Characteristics of participants
The median age of participants was 40 years (range: 22 - 53 years), and the median educational level was grade 10 (range: 9 - 12 grade) (Table 1). The median experience as a counsellor was 3 years (range: 1 - 7 years), and the median number of clients per week was 18 (range: 6 - 45). Of the 25 participants, 14 (56%) were male; 13 (52%) were farmers.

Evaluation of knowledge
All 25 participants completed both pre- and post-training exercise questions. At baseline, the average percentage of correct answers was 79% (Table 2). The average score in the HIV counselling component was 85%. Some misunderstandings were reflected in low scores in some areas, including the post-test counselling (60% correct), counselling for children (48%), and keeping privacy of clients (80%). Results in the HIV testing component (84% correct) were similar. Areas of misunderstanding included the place to prick fingers (60% correct), amount of blood needed for testing (60%). An average knowledge score in the standard precautions and post-exposure prophylaxis component (58%) was lowest of the three evaluated areas. Of the 25 participants, only 7 (28%) knew about the danger of recapping used needles, 9 (36%) knew how to dispose of infectious waste, and 14 (56%) knew about post-exposure prophylaxis.

Table 1. Characteristics of participants

Median age (years)	40	(22 - 53)
Gender		
Male	14	(56%)
Female	11	(44%)
Job		
Farmer	13	(52%)
Salaried employee	1	(4%)
Homemaker	1	(4%)
CDE in health facility	3	(12%)
Other	7	(28%)
Median educational level (Grade)	10	(9 - 12)
Median experience as counsellor (years)	3	(1 -7)
Median number of clients per week	18	(6 - 45)
Motivation for working as counsellor		
Respect from community	4	(16%)
Happy to contribute to people's health	23	(92%)
Local people help my farm	0	(0%)
Incentives	2	(8%)
Other	2	(8%)
Major challenges		
Lack of knowledge	3	(12%)
Relationship with health centre staff	1	(4%)
Relationship with the community	0	(0%)
Lack of supervision by health centre staff	2	(8%)
Lack of incentives	23	(92%)
Other	1	(4%)
Important things for keeping motivation		
Periodic opportunities to update knowledge and skill	13	(52%)
Incentives	6	(24%)
Supervision by health centre staff or DHMT members	8	(32%)
Good relationship with community	11	(44%)
Other	3	(12%)

Significant improvement was observed during the workshop, especially in standard precautions and post-exposure prophylaxis. The average percentage of correct answers rose to 95% from 79% ($p<0.001$), and the average score in standard precautions and post-exposure prophylaxis rose to 95% from 58% ($p<0.001$) after the training.

Evaluation of skill at HIV testing
All 25 participants tested 10 full-blood panel samples in each pre- and post-training exercise session. In total, this produced 500 HIV testing results, of which 496 were concordant with the laboratory result determined by UTH. The overall concordance rate was 99.2%. One participant accounted for all four of the conflicting results, 2 were false positive and the other 2 were false negative. The rate of false negatives was 0.8%, as was the rate of false positives. Major misuses of testing equipment were not observed.

Lay counsellors' motivations and obstacles to performance
All 25 participants answered the questionnaire about motivations and obstacles to performance. Twenty-three (92%) replied that contributing to people's health is a motivation for work, and 23

Table 2. True/false questions and percentage of correct answers

Questions	Percentage of correct answers	
	Pre-	Post
Counselling		
1. It is important to develop a relationship with clients during pre-test counseling. (T)	96%	100%
2. Pre-test counseling helps clients make an informed decision. (T)	92%	100%
3. Clients who come to the CT centre are ready for an HIV test. Counselling is not mandatory and a counsellor should go ahead and conduct the test. (F)	100%	96%
4. Couples counselling is not recommended since differing results may cause trouble. (F)	100%	100%
5. Post-test counselling is done during the time that the client is waiting for the test results. (F)	60%	76%
6. Children have the right to know their HIV status depending on their age, maturity, and level of understanding. (T)	92%	100%
7. Counselling children is usually difficult because in counselling a counsellor is only allowed to counsel a client for 45 minutes. (F)	48%	92%
8. With a non-reactive test result, a counsellor should not waste time with post-test counselling. (F)	92%	80%
9. Positive living helps a client to adopt safe practices and a lifestyle that aims to reduce the transmission of HIV and improves the client's quality of life. (T)	92%	100%
10. You should keep client privacy as much as possible during counselling. (T)	80%	100%
Average	85.2%	94.4%
HIV testing		
1. It is very important to follow the standard operating procedures for HIV testing when you conduct testing. (T)	100%	100%
2. The place to prick with a lancet for the 'finger-prick method' is off-centre of the fingertip. (T)	64%	96%
3. You should drop as much blood as possible for the testing kit. (F)	60%	92%
4. It is necessary to use a buffer solution when conducting HIV testing using the finger-prick method. (T)	96%	100%
5. With Determine, you should wait 15 minutes (and no longer than 60 minutes) before reading the results. (T)	92%	96%
6. It is very important to label the test strip with the client's name or ID number. (T)	100%	100%
7. According to the national testing algorithm, if results are indeterminate, the counsellor should conduct a third test, which is SD Bioline. (T)	80%	96%
8. It is possible for the first test result to be positive and the confirmation test result to be negative. (T)	80%	84%
9. If the line in the patient area is weak, you need to add more blood to the kit. (F)	64%	92%
10. The period from initial infection with HIV until antibodies are detected by a single test is called the 'window period.' (T)	100%	100%
Average	83.6%	95.6%
Standard precaution and post-exposure prophylaxis		
1. When you deal with blood, you should always protect yourself because blood can be infectious. (T)	100%	100%
2. Taking antiretrovirals (post-exposure prophylaxis) after needle-stick injury can reduce the risk of HIV. (T)	56%	88%
3. A used needle is dangerous so you should recap needles before throwing them away. (F)	28%	92%
4. There is a possibility of acquiring an infectious disease if blood splashes into the eyes. (T)	68%	100%
5. Everything you use for testing is infectious waste and therefore must be buried in the ground. (F)	36%	96%
Average	57.6%	95.2%

(92%) answered that lack of incentives is major challenge, 13 (52%) responded that periodic opportunities to update their knowledge and skill are crucial to their continued work as lay counsellors.

Discussion

At baseline, we found comparatively high levels of knowledge in HIV counselling and HIV testing and relatively weak knowledge concerning standard precautions and post-exposure prophylaxis. However, the training was able to increase knowledge overall, particularly in standard precaution and post-exposure prophylaxis. Although there is a possibility of 'ceiling effect', these improvements were statistically significant and suggest the effectiveness of this refresher training. A study among health care providers in Niger revealed the positive association between attending refresher courses and higher levels of knowledge (Adebajo, Bamgbala, & Oyediran, 2003). The importance of refresher training courses to maintain better knowledge levels has been widely recognised (Bain, 1998; Sarker, Papy, Traore, & Neuhann, 2009; Zvandasara, Magwali, Mulambo, & Sithole, 2006).

Skill at HIV testing among lay counsellors was found to be satisfactory, which is consistent with results reported by other investigators in Zambia (Sanjana *et al.*, 2009). While many have wondered at the quality of HIV testing done by members of the community, the 99.2% HIV testing concordance rate with panel samples in the current study provides support for task-shifting initiatives in this area. The reasons for the discrepancies were unclear, but the participant in question

was later followed-up by the DHO to improve his or her skills at HIV testing.

Although 'proficiency panel method' was widely adopted and used for external quality assurance programme, the complete process of HIV testing, including pricking a finger with needle for blood sample collection, could not be evaluated. According to field observations, one of the reasons for false results was an inadequate amount of blood sample since collecting enough blood is sometimes difficult using the finger-prick method. To supplement the evaluation of HIV skill, questions assessing knowledge of HIV testing were included in the questionnaire.

A finding worth mentioning is that the low score for knowledge of standard precautions and post-exposure prophylaxis during the pre-test improved markedly post-testing by sparing some time for reorientation during workshop. Some participants even shared their experiences with needle-stick injuries but fortunately none reported HIV infection as a consequence of these injuries. Compared with professional health workers, lay counsellors are involved in work that carries similar risks of physical injury but are equipped with far less training. This fact highlights the need to consider how to best protect lay counsellors and to teach them to protect themselves. This challenge is likely to increase as task shifting is adopted more widely.

Previous investigators reported a high prevalence of occupational burnout among health staff in Lusaka district, Zambia (Kruse *et al*., 2009). Retention of health care providers including community volunteers is crucial for the successful continuation of existing programmes. Downie, Clark, & Clemenston (2004) reported that the motivation for volunteers involved in community health could be classified into three categories: empathetic concern, contribution to community life, and life-course issues and personal development. As more than 50% of participants replied that periodic opportunities to update their knowledge and skills were crucial to their continued work, refresher workshops could be an intervention to sustain the motivation of lay counsellors by contributing to personal development.

Limitations of this evaluation included a small sample size, potential participant selection biases, and the validity of true-false questions that we used in pre- and post-training exercise questions. We selected 'active' lay counsellors since this was the first pilot of refresher training. One reason for such high levels of knowledge and skill at baseline might be because these participants were among the best. We do not have the data to determine the representativeness of our sample. There were no validated questions to evaluate the knowledge required for counsellors. The low scores at baseline for knowledge on standard precautions and post-exposure prophylaxis could relate to ambiguity in the phrasing of those questions. Further investigations would be required for evaluating the efficacy of training and validation of questions.

Determining how to evaluate counselling skills was another challenge in evaluating the performance of lay counsellors. According to the National Quality Assurance Strategy for HIV Counselling and Testing, regular site visits are recommended in addition to observing counselling, client exit surveys, and the use of mystery clients (Ministry of Health, 2007). Regular site visits might help to maintain a high level of motivation among lay counsellors, as 30% of participants indicated this in the questionnaire.

Findings from our study revealed the effectiveness of the refresher workshop. However, there was no standardised refresher-training module in Zambia. To maximise refresher-training impact, a standardised training module should be developed in line with training needs for future expansion.

Conclusion

The levels of knowledge of participants were significantly improved during the refresher-training workshop. HIV testing skills among lay counsellors was found to satisfactory. Relatively low levels of knowledge on standard precautions and post-exposure prophylaxis suggest the need to consider how to best protect lay counsellors. We conclude that the refresher training for lay counsellors was effective for improving the knowledge and skills of those counsellors and for monitoring their performance. We recommend the development of a standardised refresher-training module for improving the knowledge and skills of lay counsellors in the future.

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